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WOOD PRODUCTS IN HAWAII...

consumption, production, and trade

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ABSTRACT: The apparent consumption of wood products by markets in Hawaii in 1967 totaled 121 million board feet of lumber and 26 million square feet (3/8-inch basis) of plywood. Levels of demand are now many times the volume of wood products manufactured locally. Since 1954, the volume of wood products imported to Hawaii has increased rapidly. Because forested sites can grow mature sawtimber in 35 to 40 years, the production of wood products may some day become one of Hawaii's most important manufacturing industries.

RETRIEVAL TERMS: wood products demand; wood products import; timber production potential; Hawaii.
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The apparent consumption of wood products by markets in Hawaii in 1967 totaled about 121 million board feet of lumber and 26 million square feet (3/8-inch basis) of plywood *(table 1)*. "Apparent consumption" is the amount of material produced and imported, less exports, that is used or stored during a given period. Products remanufactured or otherwise reclassified, such as plywood manufactured and exported for tent platforms, would not be considered an export of the same product as used in manufacturing. For this reason, "apparent consumption" is not necessarily the same as real consumption or domestic demand, but it is often used as a rough approximation of these concepts.

WOOD PRODUCTS IMPORTS

Imports of lumber and plywood from the United States mainland and from other countries could be used as imperfect proxies for "apparent consumption" *(tables 2, 3)*. Most wood products were imported from the mainland; foreign imports accounted for only about 6 percent of the lumber and 14 percent of the plywood in 1967 *(table 1)*. Imports represented almost the entire volume of apparent wood products consumption in the State. Local production supplied only about 6 million board feet of lumber. And until 1969, no plywood was produced in Hawaii.

Wood products imports to Hawaii have increased rapidly since 1954. In 10 years, lumber imports almost doubled, and plywood imports increased about fivefold *(table 2)*. As elsewhere in the United States, in Hawaii more than two-thirds of all lumber, plywood, and many specialty wood products are consumed by the construction markets. Military, industrial, and consumer markets are also important users of wood products.

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Table 1.—*Apparent consumption—production, import, export—of lumber, plywood, and veneer in Hawaii, 1967, by products*

Products	Produced in Hawaii	Shipped from		Exports	Apparent consumption
		U.S. Mainland	Other countries		
LUMBER					
Hardwoods ..... MBF	3,925	(1)	[2]1,513	(1)	5,498
Softwoods:[3]					
WWPA Member Mills . MBF	0	11,343	(1)	(1)	11,343
CRA Member Mills .. MBF	0	8,101	(1)	(1)	8,101
Others ..... MBF	0	[4]95,578	[4]818	[4]32	96,364
Total	3,925	[5]115,022	[5]2,391	[5]32	121,306
PLYWOOD AND VENEER					
Hardwood ..... MSM[6]	0	(1)	[2]2,579	(1)	2,579
Softwood ..... MSM	0	[7]16,194	0	(1)	16,194
Others ..... MSM	0	[4] 5,772	[4]1,299	[4]107	6,964
Total	0	[5]21,966	[5]3,673	[5]107	25,532

[1]Not available.

[2]U.S. Department of Commerce Report AQ246.

[3]WWPA = Western Wood Products Association; CRA = California Redwood Association.

[4]Volumes of totals not otherwise accounted for.

[5]U.S. Army Corps of Engineers. Short tons converted on this basis:
Foreign imports of lumber 3,500# = 1,000 BFM
Domestic imports of lumber 2,500# = 1,000 BFM
Domestic imports of timbers, post & pilings 3,200# = 1,000 BFM
Domestic imports of plywood 1,125# = 1,000 SM 3/8 inch.

[6]Estimated 3/8 inch rough equivalent.

[7]American Plywood Association.

Several factors affect the amount of wood products consumption. They include (1) recognition of needs that can be satisfied by wood products, (2) economic ability to express the needs in terms of purchases, and (3) availability of the wood, and wood-competitive products that can be used for these needs. Therefore, the production, importation, and exportation of wood products provide only a limited description—under one set of conditions—of how wood products demands are being satisfied.

Wood framing, wall and roof sheathing, exterior siding, and interior paneling are still major items in the residential home construction markets in Hawaii, but concrete is becoming an abundant and intensively used material. Plywood is used almost exclusively for concrete forming. For this reason, it is a major use item in commercial and high-rise apartment building.

Varying amounts of wood products are used for military support purposes. There has been a significant increase in lumber and plywood imports coincident with the rise in military activities, starting in the early 1960's. The volumes of lumber and plywood that are converted into components of military products are, however, often exported from Hawaii, and not actually consumed locally.

The furniture industry consumes large quantities of quality lumber, plywood, and veneer products. The 1963 census of business[1] shows that consumers in Hawaii spent nearly $8.5 million to buy furniture and home furnishings. More than $1 million of furniture and related household items made from wood were imported to the State in 1967 *(table 3)*. Some signs of the quality of the furniture and consumer markets there are suggested by the variety of sources for imports of wood furniture—for example, Sweden, Italy, and Israel.[2] Hawaii's agricultural industry generates an important demand for low-priced wood products. This industry depends almost entirely on ocean transportation. As a result, it needs many boxes, crates, and pallets to handle the shipment of agricultural cargoes. Boone[3] estimated that 80 percent of the wood products consumed by the transportation industry is used in the manufacture of wood pallets.

million board feet of koa sawtimber is probably economically available.[4]

A variety of other tree species have been introduced to the islands. The most abundant among these species is robusta eucalyptus *(Eucalyptus robusta).* Standing robusta sawtimber totals about 260 million board feet. Robusta lumber is similar to apitong and keruing in both technical characteristics and appearance.[6]

The ability of many forested sites in Hawaii to grow mature sawtimber in 35 to 40 years offers a unique opportunity for the future development of Hawaii's wood products industry. Different species of timber have widely varying characteristics of coloration, strength, hardness, machinability, and other traits that determine their usefulness and market values. In terms of product-market values, trees in Hawaii can be grown selectively and in a relatively short time to produce the most valuable species of timber. For this reason, the development of a forest products industry in Hawaii may some day bring its wood products trade to a position where the value of exports will exceed that of imports.

NOTES

[1]U.S. Bureau of the Census. *Census of business, 1963.* Vol. I, Retail trade–summary statistics, Part V. U.S. Government Printing Office, Washington, D. C. 1966.

[2]U.S. Bureau of the Census. *United States imports of merchandise for consumption.* Reports IA245. 1967.

[3]Boone, R. Sidney. *The market for lumber and other wood products in Hawaii's transportation industry.* U.S. Forest Serv. Res. Note PSW-86. Pacific SW. Forest & Range Exp. Sta., Berkeley, Calif. 4 p. 1965.

[4]Nelson, Robert E., and Wheeler, Philip R. *Forest resources of Hawaii–1961.* U.S. Forest Serv. Pacific SW. Forest & Range Exp. Sta., Berkeley, Calif., in cooperation with Forestry Division, Dep. Land & Natural Resources, State of Hawaii. 48 p., illus. 1963.

[5]Skolmen, Roger G. *Wood of koa and of black walnut similar in most properties.* U.S. Forest Serv. Res. Note PSW-164. Pacific SW. Forest & Range Exp. Sta., Berkeley, Calif. 4 p. 1968.

[6]Skolmen, Roger G. *Robusta eucalyptus wood: its properties and uses.* U.S. Forest Serv. Res. Paper PSW-9. Pacific SW. Forest & Range Exp. Sta., Berkeley, Calif. 12 p., illus. 1963.

The Author

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Table 3.–*Wood products imported to Hawaii and the United States, 1967*, continued

Wood products	Shipped to Hawaii from . . .							United States	
	Philippines	Taiwan	Japan	Canada	Other	Total	Unit[1]	Total	Unit[1]
							Dollars		*Dollars*
Broom, mop and other wood handles . . . . . No	–	–	–	22,222	–	22,222	.11	11,267,786	.07
Plywood-unfinished decorative:									
Birch, thicker than 5/32 inch . . . . . Sq.ft.	–	–	31,766	–	417,162	448,928	.21	150,864,558	.12
Philippine mahogany, thicker than 5/32 inch . . . . . Sq.ft.	441,396	777,651	383,008	–	–	1,682,005	.13	1,147,245,185	.04
Plywood-finished decorative:									
Birch, thicker than 5/32 inch . . . . . Sq.ft.	–	–	35,360	–	–	35,360	.16	26,915,157	.12
Philippine mahogany, thicker than 5/32 inch . . . . . Sq.ft.	310,800	115,360	3,200	–	–	429,360	.13	395,042,345	.053
Plywood-finished and unfinished decorative:									
With walnut face . . . . Sq.ft.	–	–	6,848	–	–	6,848	.28	13,142,033	.16
With miscellaneous hardwood faces . . Sq.ft.	–	–	56,352	–	–	56,352	.29	104,456,882	.78
Consumer products:									
Wood furniture . . . . Dollars	10,175	11,790	76,531	3,084	87,583	189,163	–	26,786,063	–
Folding wooden chairs . . . . . Dollars	–	731	–	–	971	1,702	–	1,555,226	–
Wooden chairs, not folding. . . . . Dollars	–	1,347	55,591	–	54,576	111,514	–	15,213,310	–
Miscellaneous wooden household items . Dollars	326,458	6,807	34,327	–	179,440	547,032	–	15,292,636	–
Wooden forks, spoons[2]. . . . . Dollars	16,748	–	–	–	12,218	28,966	–	574,626	–
Specialty wood carvings. . . . . Dollars	72,307	24,362	17,085	–	14,409	128,163	–	2,936,705	–
Decorated mouldings . . . . . Dollars	3,293	–	5,408	–	15,379	24,080	–	3,999,940	–
SOFTWOOD IMPORTS									
Rough, dressed, worked lumber:									
Spruce . . . . . MBF	–	–	–	95	–	95	122.26	65,202	80.40
Douglas-fir . . . . . MBF	–	–	–	96	–	96	101.18	910,977	65.75
Hemlock . . . . . MBF	–	–	–	165	–	165	49.17	1,103,569	62.54
Western red cedar . . . . MBF	–	–	–	387	–	387	120.78	321,614	67.97
Cedar except Western red . . . . . MBF	–	–	–	321	–	321	94.88	13,187	109.96

Source: U.S. Bureau of the Census. January through December, 1967. United States imports of merchandise for consumption. Reports IA 245 and IQ 245 (unpublished).

[1]The unit price values shown are average market values realized by the sellers of the products listed where import duties, freight charges, marine insurance and other amounts paid to bring these products to their points of final use would have to be added to indicate their market value in the market place.

[2]Except mahogany.

Table 2.—*Lumber and plywood imported to Hawaii, 1954-1967*

Year	Lumber imports[1]	Plywood imports[2]
	MBF	*MSM 3/8 inch*
1954	74,804	1,959
1955	76,850	731
1956	94,918	1,428
1957	82,432	1,796
1958	86,495	3,680
1959	95,995	22,480
1960	95,597	15,963
1961	68,918	9,793
1962	68,864	10,881
1963	117,227	(3)
1964	149,817	(3)
1965	138,731	10,548
1966	140,264	16,588
1967	117,413	25,639

[1]Territory (State) of Hawaii, Board of Harbor Commissioners, Annual Reports, June 30, 1954-June 30, 1962. U.S. Army Corps of Engineers, Pacific Regional Statistical Office, 1965 through 1967.

[2]U.S. Army, Corps of Engineers, Pacific Regional Statistical Office. Report prepared for U.S.F.S. Jan. 17, 1964; converted from short tons to square feet, 3/8-inch basis. (1 short ton = 1,777.8 square feet, 3/8-inch basis.) 1961 through 1967 include foreign import data from Bureau of Census, U.S.D.C., U.S. Imports of merchandise for consumption. Dist. No. 32, Annual Summaries.

[3]Not available.

MANUFACTURING OPPORTUNITIES

Forests in Hawaii offer a variety of different manufacturing opportunities. The State has about 1 million acres of forest land suitable for commercial production of timber.[4] Not all of this area is likely to be used for timber production because of competing demands on lands and forested areas. But thousands of acres of planted and native forests may reasonably be expected to provide a resource base for the production of lumber, plywood, and fiberboard-type products. Some of the present forests of sawtimber are well suited for the manufacture of many products now being imported.

Ohia *(Metrosideros polymorpha)* and koa *(Acacia koa)* are the only native species of commercial timber that grows in significant volumes. Ohia resembles black walnut in colorations, but does not have its technical characteristics. There are about 377 million board feet of ohia sawtimber in Hawaii.[4] This volume one day may be used to produce wood products that look much like walnut. Koa does resemble black walnut in technical properties, but does not look like it.[5] Koa is especially well suited for uses where machining tolerances, receptivity to profiling detail, and dimensional stability are important. It also accepts an attractive natural finish. Much of the 120

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	Philippines	Taiwan	Japan	Canada	Other	Total	Unit[1]	Total	Unit[1]
							Dollars		*Dollars*
HARDWOOD IMPORTS									
Primary lumber:									
Rough Philippine mahogany, lauan .....MBF	599	–	578	–	–	1,177	193.13	31,863	152.18
Other rough lumber . . .MBF	16	–	–	–	43	59	248.58	20,219	149.18
Dressed, profiled lumber:									
Philippine mahogany, lauan .....MBF	208	–	36	–	–	244	161.82	7,025	193.45
Other lumber .....MBF	–	–	–	–	–	–	–	5,634	168.07
Specialty manufacturing:									
Strip, plank flooring . .MBF	10	–	–	–	43	53	179.94	991	173.36
Hardwood flooring except in strips and planks .....MBF	–	–	–	–	31	31	176.45	1,963	458.39
End-glued lumber products .....MBF	–	–	–	–	9	9	166.67	806	170.82
Wood furniture parts .....Dollars	–	–	20,541	–	355	20,896	–	5,660,079	–
Standard hardwood mouldings..... M 1 ft.	186	–	176	–	–	365	40.34	2,622,581	28.55

See footnote at end of table.

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